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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,531	07/11/2003	Philip A. Furman	04674.105074 (TRI 1016)	6903

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EXAMINER	
JAGOE, DONNA A	
ART UNIT	PAPER NUMBER
1614	
MAIL DATE	DELIVERY MODE
09/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/618,531	FURMAN, PHILIP A.	
	Examiner	Art Unit	
	Donna Jagoe	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/17/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 16, 2008 has been entered.

Claims 1-8 are pending in this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 is drawn to the method for the treatment or prophylaxis of a human infected with HBV comprising administration of β-L-TC, L-FMAU and interferon or their

pharmaceutically acceptable salts or prodrugs. The specification discloses β-L-TC, L-FMAU and interferon as well as salts which meet the written description and enablement provisions of 35 USC 112, first paragraph. However, claims 1-8 are directed to encompass prodrugs thereof, which only correspond in some undefined way to specifically instantly disclosed chemicals. None of these "prodrugs" meet the written description provision of 35 USC § 112, first paragraph, due to lacking chemical structural information for what they are and chemical structures are highly variant and encompass a myriad of possibilities. The specification provides insufficient written description to support the genus encompassed by the claim.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, that he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116.) With the exception of the above specifically disclosed chemical structures, the skilled artisan cannot envision the detailed chemical structure of the encompassed derivatives, analogs, etc., regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The chemical structure itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483,

claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence. Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an Applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood*, 107 F.3d at 1572, 41 USPQ2d at 1966. Therefore, only the above chemically structurally defined chemicals, but not the full breadth of the claim(s) meet the written description provision of 35 USC § 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC § 112 is severable from its enablement provision. (See page 1115.)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 contains the trademark/trade names Roferon®-A, Pegasys®, Intron®A, Peg-Intron®, Infergen®, Omniferon®, Rebif®, Superferon® and Huferon®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the different types of interferon available on the market and, accordingly, the identification/description is indefinite. It is suggested that the claim be amended to delete the tradenames/trademark names to obviate the rejection.

Claim Rejections - 35 USC § 103

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schinazi et al. U.S. Patent No. 5,703,058 A and Thyagarajan U.S. Patent No. 6,589,570 B1.

Schinazi et al. teach **FTC** exhibits activity against Hepatitis B virus (HBV) (column 2, lines 40-41) and genetically engineered vaccine, **alpha interferon** effective for HBV (column 2, lines 46-55). Schinazi et al. further disclose that **L(-)FMAU** is an example of an antiviral agent that can be used in combination with the (-) enantiomer of FTC (column 6, lines 21-27) for the treatment of HBV infections in humans (column 3, lines 5-6).

It does not specifically teach all three agents to be combined into one agent to be administered, however Schinazi teach that the agents recited in claim 1 of the patent are to be administered in combination or in alternation with a second compound.

Schinazi teaches that FTC exhibits activity against **HBV** and alpha interferon is effective for **HBV** and that L(-)FMAU is an example of an antiviral agent that can be used in combination with the (-) enantiomer of FTC (column 6, lines 21-27) for the treatment of **HBV** infections in humans (column 3, lines 5-6).

One of ordinary skill in the art could have combined the elements as claimed by known methods and that in combination, each element merely would have performed the same function as it did separately, to treat or prophylax against HBV.

One of ordinary skill in the art would have recognized that the results of the combination were predictable.

The convenience of putting the β-L-FTC, LFMAU and interferon together in one composition for the method of treating/prophylaxing against HBV, though perhaps a matter of great convenience, did not produce a new or different function and to those skilled in the art, the use of the old elements in combination would have been obvious. The selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Schinazi et al. does not teach the β-L-FTC is substantially pure and it does not teach the many variations of interferon.

In general, stereoisomers/optical isomers are obvious from racemic mixtures. As legal authority the examiner cites *In re Adamson and Duffin*, 125 U.S.P.Q. 233. The case sets forth the requirements of patentability with regard to stereoisomers as follows:

1) The existence of a racemate is, in and of itself, sufficient to render obvious any individual stereoisomers contained within; no express suggestion of isomer separation is needed. See the first paragraph on page 235.

2) One skilled in the art expects that individual stereoisomers will differ significantly in physiological/pharmacological activity and toxicity, because living systems are chiral and thus preferentially process stereochemical configurations over others. See page 234, the third full paragraph and page 235, the fifth full paragraph on the page.

L-FTC is known from the recitation of its use for treatment of HBV in U. S. Patent 5,703,058. Consonant with the reasoning of *Adamson*, the existence of that racemate renders obvious any individual stereoisomers contained within, i.e. the R and S enantiomers recited instantly. Regarding the substantially pure form of β-L-FTC, Schinazi et al. teach that the β-L forms are specifically contemplated (column 7, line 64 to column 8, line 3). Schinazi teach that enantiomerically pure forms are used herein and the term enantiomerically enriched refers to a nucleoside composition that includes at least 95% to 98% of a single enantiomer of that nucleoside (column 6, lines 45-49). One skilled in the art would have been motivated to prepare additional useful compositions of the ranges taught by the prior art. While the reference is silent regarding the 90% by weight ratios, the difference in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. When the general conditions are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Aller, 220 F.2d 45, 105 USPQ 233, 235 (CCPA 1955). In the absence of any criticality and/or unexpected results of the additional ranges claimed, the instant invention is considered obvious.

Regarding the method of use of alpha, beta and gamma interferon for the method of treating hepatitis B, Thyagarajan (quoting Lau et al., Gut. Suppl. 1991;547-562) recites in Table 1 (column 2), agents that have been studied and are successful in the treatment of HBV infection are *inter alia* Interferons such as Alpha interferon, Beta interferon and Gamma interferon.

It would have been made obvious to one of ordinary skill in art at the time it was made to employ the combination of β-L-FTC and L-FMAU and interferon for the treatment or prophylaxis of a human infected with hepatitis B virus motivated by the teaching of Schinazi et al. who recites that L(-)FMAU is an example of an antiviral agent that can be used in combination with the (-) enantiomer of FTC (column 6, lines 21-27) for the treatment of HBV infections in humans (column 3, lines 5-6) along with alpha interferon (column 2, lines 46-55) and the teaching of Thyagarajan who recites that Interferons such as Alpha interferon, Beta interferon and Gamma interferon are successful treatments for HBV.

Response to Arguments

The Examiner is in agreement with the persuasive remarks submitted concerning the outstanding 35 USC 102(b) rejection in the final rejection dated August 16, 2007 in view of which the rejection is hereby **withdrawn**.

Applicant asserts that Schinazi does not disclose the combination or alternation of the three components with each other. In response, Schinazi teaches that FTC exhibits activity against **HBV** and alpha interferon is effective for **HBV** and that L(-)FMAU is an example of an antiviral agent that can be used in combination with the (-) enantiomer of FTC (column 6, lines 21-27) for the treatment of **HBV** infections in humans (column 3, lines 5-6). The convenience of putting the β-L-FTC, LFMAU and interferon together in one composition for the method of treating/prophylaxing against

HBV, though perhaps a matter of great convenience, did not produce a new or different function and to those skilled in the art, the use of the old elements in combination would have been obvious. The selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Applicant asserts that the Thyagarajan reference fails because the examiner is using it to teach the success at treating HBV. Contrary to Applicants' assertions, Thyagarajan reference is used to show the obvious of using the various types of interferon as claimed in instant claim 5. The teaching that interferon is a successful treatment for HBV is in both Schinazi (**alpha interferon** effective for HBV (column 2, lines 46-55)) and also in Thyagarajan (Table 1 (column 2), agents that have been studied and are successful in the treatment of HBV infection are *inter alia* Interferons such as Alpha interferon, Beta interferon and Gamma interferon). Applicant states that Thyagarajan teaches that interferons have a limited success rate, prohibitive cost and profound side effects and non-accessible. In response, it is immaterial whether it has prohibitive cost, profound side effects or it is non-accessible. The Federal Circuit has reiterated that therapeutic utility sufficient under the patent laws is not to be confused with the requirements of the FDA with regard to safety and efficacy of drugs. FDA approval, however, is not a prerequisite for finding a compound useful within the meaning of the patent laws. *Scott [v. Finney]*, 34 F.3d 1058, 1063, 32 USPQ2d 1115, 1120 [(Fed.Cir. 1994)]. Usefulness in patent law, and in particular in the context of pharmaceutical inventions, necessarily includes the expectation of further research and development.

The stage at which an invention in this field becomes useful is well before it is ready to be administered to humans. Title 35 does not require Phase II testing in order to prove utility, the associated costs would prevent many companies from obtaining patent protection on promising new inventions, thereby eliminating an incentive to pursue, through research and development, potential cures in many crucial areas such as the treatment of cancer. Congress has given responsibility to the FDA, not the PTO to determine whether drugs are sufficiently safe.

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna Jagoe whose telephone number is (571) 272-0576. The examiner can normally be reached on Monday through Friday from 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Donna Jagoe /D. J./
Examiner
Art Unit 1614

September 23, 2008

/Ardin Marschel/
Supervisory Patent Examiner, Art Unit 1614